

REMARKS

Applicants have amended the title of the application; canceled claims 12, 14-18, and 26-29, without prejudice or disclaimer of their subject matter; amended claims 19, 20, and 23 to more appropriately define the present invention; and added new claims 30-42 to protect additional aspects related to the present invention. Claims 19-25 and 30-42 remain pending and under current examination.

Regarding the Office Action:

In the Office Action, the Examiner objected to the title; rejected claims 19-22 under 35 U.S.C. § 102(b) as being anticipated by Inoue et al. (U.S. Patent No. 5,635,763) (“Inoue”); and rejected claims 23-25 under 35 U.S.C. § 103(a) as being unpatentable over Inoue. Applicants traverse the objection and rejections for the following reasons.¹

Objection to the Title:

The Examiner objected to the title of the application as not descriptive. Applicants have amended the title of the application, as indicated above, to be more clearly indicative of the invention to which the claims are directed. Applicants request that the objection to the title be withdrawn.

In addition, Applicants acknowledge the Examiner’s request for cooperation in correcting any errors in the specification, and Applicants will correct any errors of which they may become aware.

¹ The Office Action contains statements characterizing the related art, case law, and the claims. Regardless of whether any such statements are specifically identified herein, Applicants decline to automatically subscribe to any statements in the Office Action.

Rejection of Claims 19-22 under 35 U.S.C. § 102(b):

Applicants traverse the rejection of claims 19-22 under 35 U.S.C. § 102(b) as being anticipated by Inoue. Applicants respectfully disagree with the Examiner's arguments and conclusions.

In order to properly establish that Inoue anticipates Applicants' claimed invention under 35 U.S.C. § 102, each and every element of each of the claims in issue must be found, either expressly described or under principles of inherency, in that single reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

Inoue does not disclose each and every element of Applicants' claimed invention, despite the Examiner's allegations. Applicants independent claim 19 recites, in part,

a wiring disposed in a predetermined pattern above a substrate and mainly comprising a first metal element; a protecting conductive layer disposed on a pad section of the wiring and mainly comprising a second metal element different from the first metal element; and a barrier film, disposed between the wiring and the protecting conductive layer, that is formed by stacking two pairs or more of a layer made of a predetermined metal element and a layer made of a compound mainly comprising the predetermined metal element.

In contrast to the claimed invention, Inoue discloses a barrier film (22/22(a), 6, 21, and 9 in Figs. 3A, 3B, 4, and 5) between an aluminum alloy layer (5) and another aluminum alloy layer (10). Inoue's barrier film (22/22(a), 6, 21, and 9) is a barrier film between a metal (aluminum alloy layer 5, 9) and an insulating film (SiO₂ film 7), and not a barrier film between two different metal elements. Inoue does not disclose the claimed barrier film "disposed between the wiring and the protecting conductive layer," where the claimed "wiring" "mainly compris[es] a first

metal element” and the “protecting conductive layer” “mainly compris[es] a second metal element different from the first metal element” (independent claim 19).

Inoue therefore does not anticipate Applicants’ independent claim 19. Independent claim 19 is therefore allowable, for the reasons argued above, and dependent claims 20-22 are also allowable at least by virtue of their dependence from allowable base claim 19. Therefore, the improper 35 U.S.C. § 102(b) rejection of claims 19-22 should be withdrawn.

Rejection of Claims 23-25 under 35 U.S.C. § 103(a):

Applicants respectfully traverse the rejection of claims 23-25 under 35 U.S.C. § 103(a) as unpatentable over Inoue. Inoue is the only reference relied upon by the Examiner in this rejection. Applicants disagree with the Examiner’s arguments and conclusions. A *prima facie* case of obviousness has not been established.

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).” M.P.E.P. § 2142, 8th Ed., Rev. 2 (May 2004), p. 2100-128.

The first requirement for establishing a *prima facie* case of obviousness has not been established, because Inoue does not teach or suggest each and every element of Applicants’ independent claim 19, from which claims 23-25 depend.

Applicants have already demonstrated in the previous section that Inoue does not teach or suggest all the recitations of Applicants’ independent claim 19, from which claims 23-25 depend. In addition, the Examiner admitted that “Inoue et al. does not disclose the metal element is

selected from Group IVa, Group Va or Group VIa” and “Inoue et al. does not disclose the wiring is formed of Cu and the barrier film is formed of the pairs of Ta and Ta₂N” (Office Action, p. 4).

Applicants have therefore already established that Inoue does not teach or suggest each and every element of independent claim 19. Accordingly, the Examiner’s reliance on Inoue fails to establish *prima facie* obviousness of dependent claims 23-25. Dependent claims 23-25 are allowable at least by virtue of their dependence from allowable base claim 19. The improper 35 U.S.C. § 103(a) rejection should be withdrawn.

New Claims 30-42:

Applicants have added new claims 30-42 to protect additional aspects of the present invention. New independent claim 30 is similar to independent claim 19. New claims 31-36 generally correspond to dependent claims 20-25; new dependent claim 37 recites a feature corresponding to one of the elements of claim 19; and new claims 38-42 generally correspond to dependent claims 20-25.

Inoue does not disclose or suggest at least Applicants’ claimed

...a barrier film, disposed between the wiring and the protecting conductive layer and on a sidewall of the opening of the insulating film, that is formed by stacking two pairs or more of a layer made of a predetermined metal element and a layer made of a compound mainly comprising the predetermined metal element. (independent claim 30)

In contrast to the claimed invention, Inoue’s barrier film (21, 9) is *one* pair of a Ti and TiN layer on the sidewall of the contact hole 8 opening in insulating SiO₂ film 7.

Independent claim 30 is therefore allowable over Inoue, and dependent claims 31-42 are also allowable at least by virtue of their dependence from allowable base claim 30.

Conclusion:

In view of the foregoing, Applicants request reconsideration of the application and withdrawal of the rejections. Pending claims 19-25 and 30-42 are in condition for allowance, and Applicants request a favorable action.

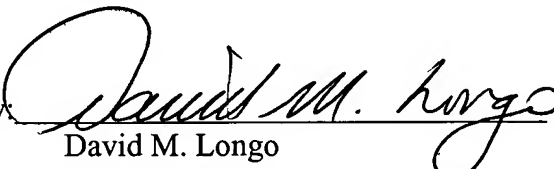
If there are any remaining issues or misunderstandings, Applicants request the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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